Development of an Environmental Management System (EMS) for the MA DEP Senator William X. Wall Experiment Station

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USEPA EMS Initiative for Local Government Entities

- Pilot project designed to assist public-sector organizations develop & implement an EMS based on the ISO 14001 protocol
- Sponsored by USEPA Offices of:
  - Water
  - Compliance
  - Air & Radiation

WES EMS Project

- WES Fenceline
- General objectives for facility:
  - Reduce environmental impacts
  - Reduce operational costs
  - Maintain analytical performance and productivity

WES EMS Project
(Continued)

- Transfer EMS model to environmental and public health laboratories in the northeast
- MA DEP leading by example

MA DEP Wall Experiment Station

- Located in Lawrence, MA
- Founded in 1887
- Current 22,000-sq. ft. facility was built in 1952
- Designated in 1975 as a National Historic Civil Engineering Landmark by the American Society of Civil Engineers
- MA environmental reference laboratory

MA DEP Wall Experiment Station
(Continued)

- State principal drinking water laboratory as required for primacy under the Safe Drinking Water Act
- Provides technical & laboratory support to all MA DEP programs
- Houses 55 scientists, engineers, and support personnel in 2 organizational units:
  - Division of Environmental Analysis
  - Air Assessment Branch

Getting Employee Buy-In

- Successful EMS implementation depends on employee input, involvement, and understanding at every level in the "fenceline"

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WES EMS Gap Analysis

- Most EMS elements are either not implemented or only partially implemented at WES
- Documentation is largely lacking for EMS elements in place

WES Environmental Policy

- To comply fully with all environmental laws, regulations, and policies
- To continuously improve the effectiveness of our environmental management and waste minimization efforts
- To seek ways to prevent pollution, use energy and water efficiently, and reduce the amount of waste produced at WES

WES Environmental Policy
(Continued)

- To monitor and evaluate our environmental performance
- To transfer the WES laboratory EMS model to the laboratory community
- To serve as a model and communicate the EMS benefits to other DEP programs, to other state agencies, to the entities that DEP regulates, to the local community, and to other stakeholders

Identifying Environmental Aspects and Impacts

- Most Technically Challenging Task in Creating an EMS
- Requires Analysis of Each Activity, Product or Service Conducted or Provided by the Organization
- Inventory of Aspects Helps an Organization Visualize its Environmental Footprint

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WES EMS Significance Criteria

- Any regulated aspect
- Environmental impact rating
- Operational cost versus availability of proven, cost-effective improvements

WES Significant Environmental Aspects

In Order of Decreasing Significance:

- Indoor air releases
- Noise generation
- Gasoline consumption
- Vehicle emissions
- Fume hood emissions

WES Significant Environmental Aspects

In Order of Decreasing Significance:

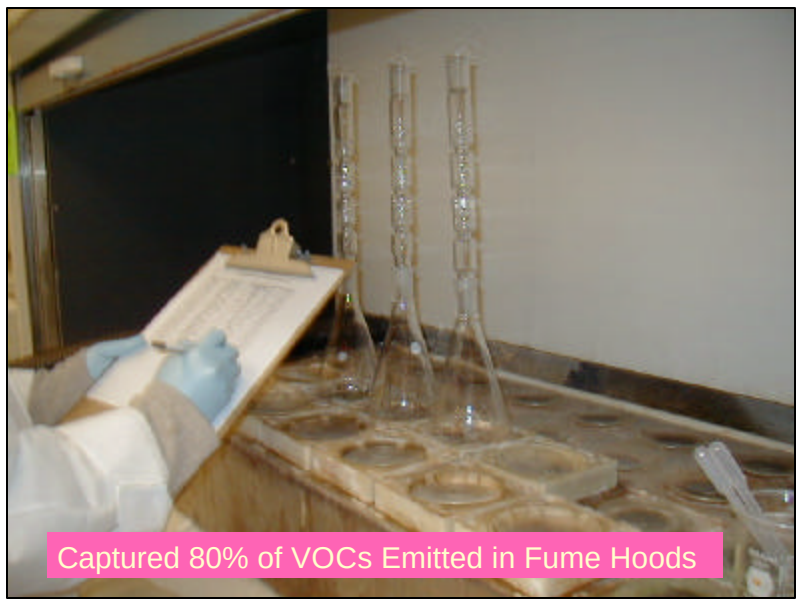
- Hazardous waste generation
- Chemical storage (safety issues)
- Electricity and natural gas use
- Chemical use
- Paper use
- Solid waste generation

WES Significant Environmental Aspects

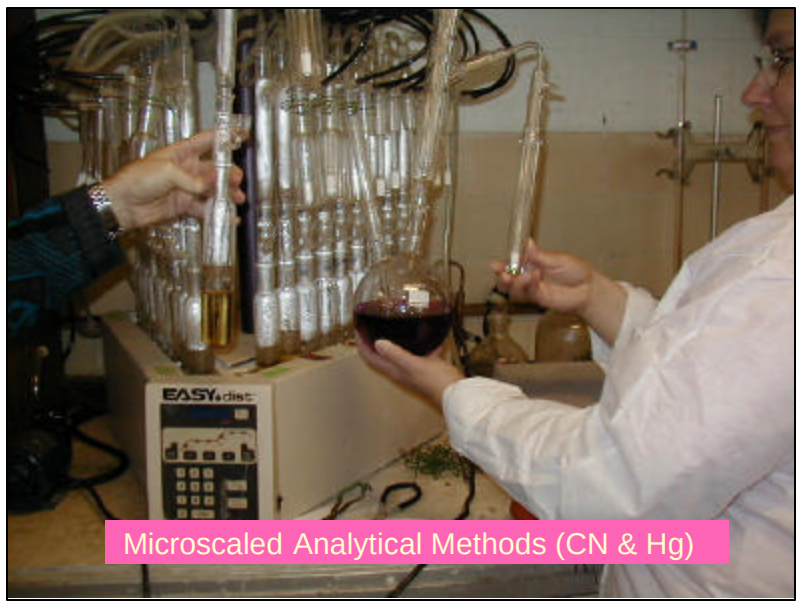
In Order of Decreasing Significance:

- Water use
- Wastewater generation
- Parking lot stormwater runoff

Massachusetts Department of Environmental Protection



Reduced Emissions of Acid Vapors During Trace Metal Analysis (Microwave Digestion)



Microscaled Analytical Methods (CN & Hg)

Recycled/Composted 3 Tons of Solid Wastes Annually (13% by wt & 17% by vol of total WES stream)

Final Thoughts

- EMS implementation requires a significant investment in staff time, but once in place, increases staff productivity & morale
- EMS often leads to quick payback in improved environmental performance (i.e., low hanging fruit)
- EMS leads to increased awareness of the environmental footprint in all our activities